

TESTIMONY
of
PAUL GADOURY
before the
PUBLIC UTILITIES COMMISSION

FOR

AN ABBREVIATED FILING

for
PROVIDENCE WATER

June, 2002

**PROVIDENCE WATER SUPPLY BOARD
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PAUL GADOURY**

1 **Q. Please state your name and your position?**

2 A. Paul Gadoury, Director of Engineering for the Providence
3 Water Supply Board (Providence Water).
4

5 **Q. How long have you been employed by Providence Water and**
6 **held this position?**

7 A. I have been employed since April of 1974 or approximately
8 28 years. I have held the position of Director of
9 Engineering since November of 1990.
10

11 **Q. Would you please state your education, background and**
12 **professional associations?**

13 A. I graduated Magna Cum Laude from the University of Rhode
14 Island in 1971 with a Bachelor's Degree in Civil
15 Engineering. I am a Registered Professional Engineer in
16 the State of Rhode Island and the Commonwealth of
17 Massachusetts. I am also a Registered Professional Land
18 Surveyor in the State of Rhode Island. My background
19 includes experience in construction and 28 years of
20 employment with Providence Water.
21

22 **Q. Please explain your duties and responsibilities.**

23 A. My duties involve the oversight and direction of all
24 engineering activities at Providence Water, including
25 operational engineering and engineering records
26 maintenance activities, expansions to the system
27 including new customer tie-ins and system additions, and
28 the planning and implementation of Providence Water's
29 Capital Improvement (CIP) and Infrastructure Replacement
30 (IFR) Programs.

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1

2 **Q. What issues are being addressed in this testimony?**

3 A. Addressed in this testimony is 1) A request to extend the
4 funding that has been authorized for the installation of
5 valves in the 102" aqueduct at the Warwick wholesale
6 connection to allow us to install similar valving in the
7 78" aqueduct at the Kent County Water Authority wholesale
8 connection; and 2) A request for additional rate relief
9 in the amount of \$400,000 annually for what will be new
10 and ongoing operating and maintenance costs for our
11 sludge lagoons located downstream of the Scituate
12 Reservoir dam into which flows water treatment process
13 residuals (sludge) from our treatment plant.

14

15

16 **1) 78" Aqueduct Valves**

17

18 **Q. Could you please explain the need for the valves in the**
19 **78" aqueduct?**

20 A. Valves are needed at the Kent County wholesale connection
21 in the 78" aqueduct for the same reason the valves were
22 needed in the 102" aqueduct at the Warwick wholesale
23 connection. The 78" diameter aqueduct and the 102"
24 diameter aqueduct are both part of the same aqueduct
25 system. The aqueduct begins at the treatment plant as a
26 78" diameter line which later transitions to 102" in
27 diameter. Kent County's Clinton Avenue wholesale
28 connection, which is the primary supply source for their
29 system, is located directly off of the 78" aqueduct.
30 This connection depends completely on the integrity and

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1 continued service of the entire 4 mile long section of
2 this aqueduct. Should the 78" line go out of service,
3 Kent County would lose this connection entirely. In this
4 respect, Kent County may be even more vulnerable than
5 Warwick is off of the 102" aqueduct. Warwick could, at
6 least during the lower demand winter season, sustain
7 itself off its alternate 30" Pettaconsett connection.
8 Kent County, on the other hand, depends primarily on
9 this Clinton Avenue connection and loss of that
10 connection would seriously jeopardize its water supply.

11
12 In addition to the possibility of a failure of this
13 aqueduct, Providence Water needs to conduct an interior
14 inspection of the 78" section of the aqueduct line,
15 similar to what was done on the 102" section. An
16 inspection of this 78" line, in addition to the 102", was
17 a recommendation of the vulnerability assessment study
18 that Providence Water commissioned following the failure
19 of the 102" aqueduct in November 1996. At present, there
20 is no way to shut down the 78" section without putting
21 Kent County out of service. Valves are needed to allow
22 the shutdown of the 78" to inspect it and conduct any
23 needed rehab work while continuously maintaining Kent
24 County's supply, and to safeguard Kent County against any
25 accidental loss of the line.

26
27 **Q. Has Providence Water done any planning work relative to**
28 **the installation of these valves?**

29 **A.** Yes. Following PUC authorization in the Docket 3163 rate
30 order for \$1 million in funding for the installation of

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1 valves at Warwick's 102" connection, Providence Water
2 prepared a bid package for having these valves installed.
3 Recognizing the need for similar valving at the Kent
4 County connection, Providence Water solicited prices in
5 this bid for optionally installing valves at the Kent
6 County connection also, with the hope of securing
7 favorable pricing by bidding it in concert with the 102"
8 valve project, and with the intention of petitioning the
9 PUC for authorization for this additional cost should the
10 pricing be considered acceptable.

11
12 **Q. Have you obtained prices for installing these valves?**

13 A. Yes we have. The bids came in as follows:

14 102" valving only: \$836,650

15 78" valving only: \$1,015,980

16 \$1,852,630

17 78" & 102" under

18 same contract: \$1,742,750

19
20 In accordance with this bid, prices for doing each of the
21 valve locations as individual projects under two separate
22 individual contracts would cost \$1,852,630. Through
23 economies of scale and similar design effort, both valve
24 locations can be done under the same contract for
25 \$1,742,750 for a savings of \$109,880.

26
27 **Q. Is it Providence Water's opinion that the Kent County**
28 **valves should be done also at this price?**

29 A. Yes. While the price for installing the valving on the
30 78" aqueduct is higher than on the 102" line, this is

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1 because of the fact that Kent County's connection cannot
2 be taken out of service at any time during the
3 construction. The valving must therefore be installed
4 while keeping the 78" line in continuous service. This
5 requires the hiring of specialty firms to install "line-
6 stopping" equipment. This contrasts with the easier task
7 of installing valving at Warwick's connection on the 102"
8 line where the connection can be put out of service
9 during the winter months to facilitate the work. Doing
10 the construction under this same contract not only saves
11 \$109,880, but it will enable this more difficult valving
12 job to be done by the same firm that will have gained
13 familiarity and experience by having already done the
14 similar 102" valving. Finally, similar to the Warwick
15 connection, full protection will then be in place to Kent
16 County's critical wholesale connection in the event of a
17 break at any location in the aqueduct, and Providence
18 Water will be afforded the ability to shut down the
19 aqueduct for conducting the upcoming needed inspections
20 on the 78" line, along with any needed corrective work.

21
22 **Q. When is Providence Water proposing to have this work**
23 **done?**

24 A. The 102" valving is being proposed to be done this year
25 under the Design/Build project that has been awarded. The
26 design work under this contract is presently underway.
27 Advance preparatory site work and the installation of
28 auxiliary piping will be started this summer. Plans are
29 to shut down the 102" aqueduct and the Warwick connection
30 in October for the installation of the valving on the
31 aqueduct. Plans are to continue with the installation of

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1 78" valving under the same contract during the following
2 Fall 2003/Winter 2004 season. At present, the contract
3 is in place to perform the work under this schedule if
4 the funding authorization is approved.

5
6 **Q. How is Providence Water proposing to fund this valving of**
7 **the 78" aqueduct?**

8
9 A. In the Docket 3163 rate order, the Commission authorized
10 \$500,000 in annual revenue to be restricted for funding
11 the 102" aqueduct valving, the cost of which was
12 estimated at the time to be \$1 million. The Commission
13 stipulated that the \$500,000 would thereafter be directed
14 into the IFR fund annually. Providence Water is
15 requesting that rather than being directed to the IFR
16 fund after \$1,000,000 (2 years), this annual \$500,000
17 continue to be directed annually into the same valve fund
18 for continuing on with the 78" valving. After payment of
19 both valve projects, the monies would then be directed to
20 the IFR fund.

21
22
23 **2) Sludge Lagoon Operation and Maintenance**

24
25 **Q. Could you please explain what the sludge lagoon operation**
26 **and maintenance costs are about?**

27
28 A. Since the beginning of the Providence Water Supply Board
29 Scituate Treatment Plant's operations, sludge generated
30 by the treatment process has flowed to and been deposited

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1 into storage lagoons located downstream of the Scituate
2 Reservoir dam. These lagoons are essentially large man-
3 made ponds into which the discharged water/sludge mix
4 from the water treatment process is sent. The intent of
5 these lagoons is to provide detention time for the
6 settling out of sludge solids prior to discharge of the
7 decanted water to the Pawtuxet River. There are three of
8 these lagoons, known as Lagoon 1A, 1B, and 2.

9
10 Standard practice in the water treatment industry is to
11 regularly remove accumulated sludge in settling basins so
12 as to maintain the effectiveness of the basins in
13 settling out sludge solids. In the past, however, these
14 lagoons were never emptied of sludge. Instead, sludge
15 was simply allowed to accumulate through the years. This
16 led to the first two lagoons, 1A and 1B, becoming
17 completely full and ineffective for sludge settling
18 purposes. While they should have been functioning as
19 settling basins, allowing sludge to settle out of the
20 water before the excess water entered the Pawtuxet River,
21 the water simply flowed over them in what had become
22 eroded stream beds on the surface of the lagoons. As
23 such, no settling took place until the sludge/water mix
24 reached the last basin in the process, Lagoon No. 2, from
25 which the settled water discharges directly into the
26 Pawtuxet River. The condition of these lagoons and the
27 need for restoring them was recognized by Providence
28 Water and was also pointed out in the standard Sanitary
29 Survey assessment conducted by the RI Department of
30 Health.

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1 In 1998, as part of its IFR program, Providence Water
2 began the process of restoring these lagoons. This
3 included removing the accumulated sludge and restoring
4 the lost storage capacity of the lagoons, rehabbing the
5 lagoons' culvert system and flow control structures, and
6 installing a system of drainage channels and flow
7 controls that will allow Lagoon 1A and 1B to be
8 alternately taken off line for periods of time in the
9 future. Presently, water and sludge flow through these
10 lagoons in series, first flowing through Lagoon 1A and
11 then on to 1B. Under the new configuration, the basins
12 will be able to each be alternately taken off line for a
13 year or several years to "rest" and allow natural drying
14 and thickening of the accumulated sludge to occur so that
15 it can be most economically removed on a regular
16 maintenance basis hereafter. Regularly removing the
17 sludge, such as is standard practice in the water
18 industry, will preserve the storage capacity and
19 detention time of the basins, and consequently their
20 continued effectiveness.

21
22 Plans are for the removal of sludge on a regular basis so
23 as to not allow a net increase in sludge volume over
24 time. Based on the current water treatment process, the
25 dry weight of sludge production is projected to be 4,800
26 dry lbs/day. As shown in the attached Exhibit PG-1,
27 based on this figure, the projected amount of sludge
28 produced annually at a 20% solids concentration is 4,380
29 wet tons/yr. This is the average amount of sludge that
30 would need to be removed annually from the lagoons at the
31 estimated 20% solids concentration at which removal would

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1 take place. It should be noted that while this is the
2 "theoretical" amount of sludge that should be produced
3 annually as determined from chemical formula analyses,
4 visual observations by both Providence Water and the
5 specialty firm which has been removing and disposing of
6 sludge as part of our lagoon rehabilitation project leads
7 us both to believe that for some reason a greater volume
8 than this may be getting produced. At this point,
9 however, not having any other basis on which to project
10 the annual volume, the theoretically predicted quantity
11 (plus an added 20% contingency cost factor) is being used
12 to estimate annual removal costs.

13
14 Providence Water will need to enter into a contract with
15 a specialty firm for the annual removal and suitable
16 disposal of this sludge and will be soliciting bids for
17 these services. The last quote received for this removal
18 and disposal under the existing lagoon rehab project was
19 for \$75 per wet ton. Applying this rate to the
20 theoretical annual sludge volume, along with a
21 contingency factor of 20% to account for potentially
22 higher bid costs and volumes of sludge produced, yields
23 an added operations and maintenance cost of approximately
24 \$400,000 annually to Providence Water for ongoing sludge
25 removal and disposal services necessary to maintain the
26 continued functionality of the settling lagoons.

27
28 **Q. Does this conclude your testimony?**

29 **A. Yes.**